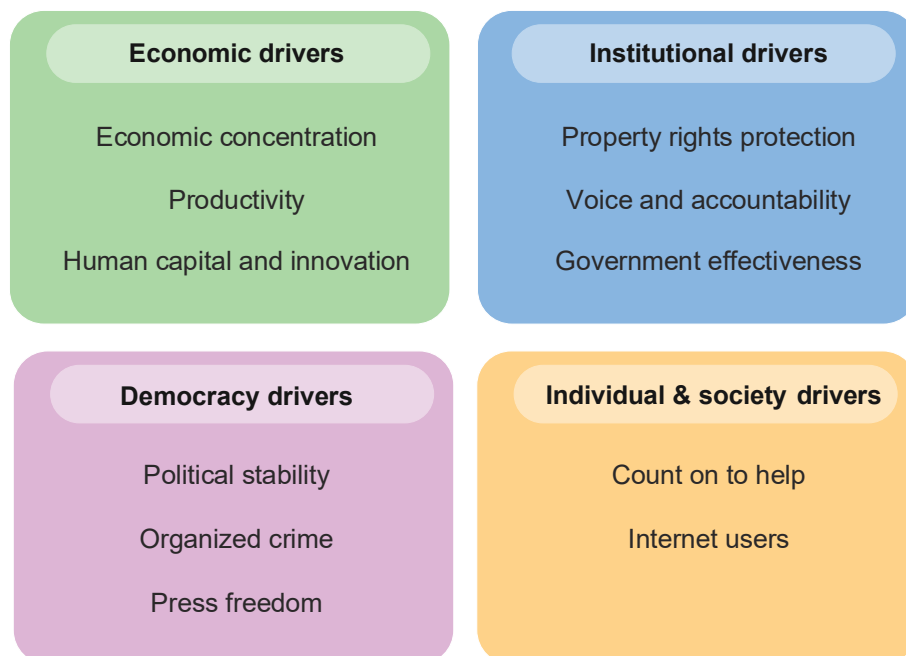


# Resilience drivers

From a theoretical standpoint, drivers of resilience are structural characteristics, processes or other determinants that provide impulse or motivate the capacity of a territorial system to bounce-back and regain its status or even a better one after a significant perturbation. Some approaches differentiate between systems' internal variables of resilience and external drivers that come from higher scales (Walker et al., 2012). In our view, drivers include all relevant explanatory factors that contribute to better shock absorption, adaptation and transformation of regional and national systems. However, resilience drivers may vary depending on the nature of the system at stake, as well as on the nature of the shock. When referring to urban resilience, Esteban (2020) differentiates five types of resilience drivers, without ranking them (human, social, institutional, economic and environmental capitals), while for the case of the 2008–09 economic crisis, scholars argue that factors related to the well-functioning of markets matter the most. Nevertheless, exploring comprehensive sets of multidimensional variables that are supposed to drive resilience has the advantage of offering a more integrated image of the issue at stake.

This section reports on the 11 resilience drivers that have been indicated by our analysis to be significant (see the figure and table below), and maps five of the most important of them. The final purpose of assessing and analysing resilience drivers is to give insights on those indicators that could guide decision-makers to plan for more resilient regions or nations.

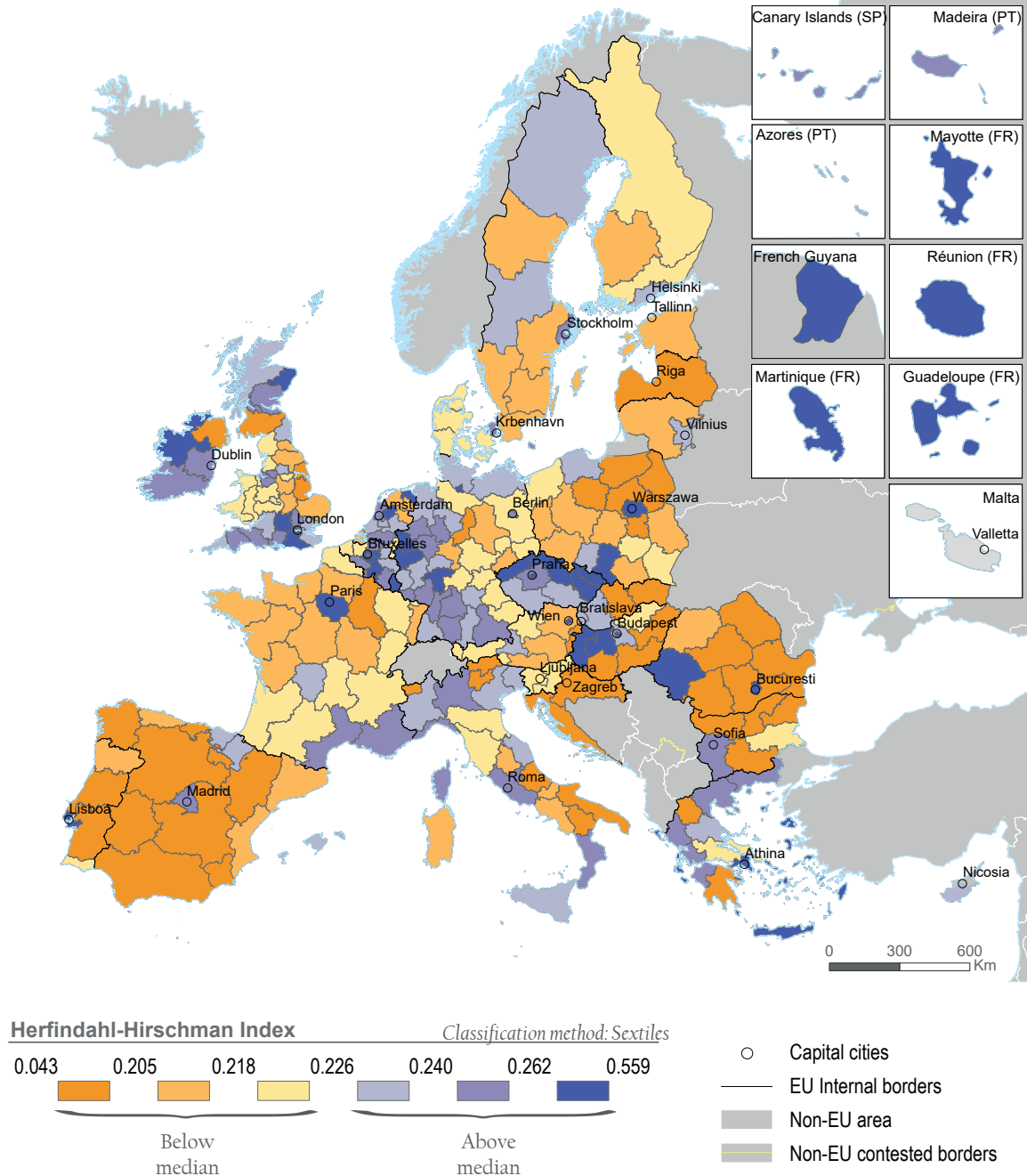


## Weights of variables included in the Resilience Capacity Index

Variables	Description	Unit	Geographical scale	Source database	Weights	Average used for testing drivers
Count on to help	If you were in trouble, do you have relatives or friends you can count on to help you whenever you need them, or not?	Percentage of YES	NUTS0	Gallup	0.111	2006–2008
Economic concentration	Herfindahl–Hirschman Index (the higher the scores, the higher the concentration)	Index	NUTS2	ARDECO	0.120	2005–2007
Government effectiveness	Government effectiveness	Score -2.5 to 2.5, 2.5 best	NUTS0	WGI	0.076	2005–2007
Human capital	Persons with tertiary education (ISCED) and/or employed in science and technology	% of active -population	NUTS2	Eurostat	0.071	2005–2007
Internet users	Internet users (%)	%	NUTS0	Gallup	0.081	2005–2007
Organized crime	Organized crime	Score 1–7	NUTS0	WEF	0.080	2005–2007
Political Stability	Political Stability, absence of violence, including terrorism	Score -2.5 to 2.5	NUTS0	WGI	0.104	2005–2007
Press freedom	Components included A = Laws and regulations that influence media content; B = Political pressures and controls on media content; C = Economic influences over media content; D = Repressive actions	Rescaled, 1–100, 100 most free	NUTS0	Freedom House	0.079	2005–2007
Productivity	Real GDP in PPP (constant 2015 prices) divided by the number of working hours	Real PPP per capita	NUTS2	ARDECO	0.088	2005–2007
Property rights	Property rights protection	Score 0–10	NUTS0	PRA	0.095	2007–2008
Voice and accountability	Voice and accountability	Score -2.5 to 2.5, 2.5 best	NUTS0	WGI	0.095	2005–2007

Notes: repressive actions refer to killing of journalists, physical violence against journalists or facilities, censorship, self-censorship, harassment, expulsions, etc. Scor 1–7 for organized crime should be interpreted as follows: 0=worst, 7 = best. Score 0–10 for Property rights should be interpreted as follows: 0 = worst, 10 = best.

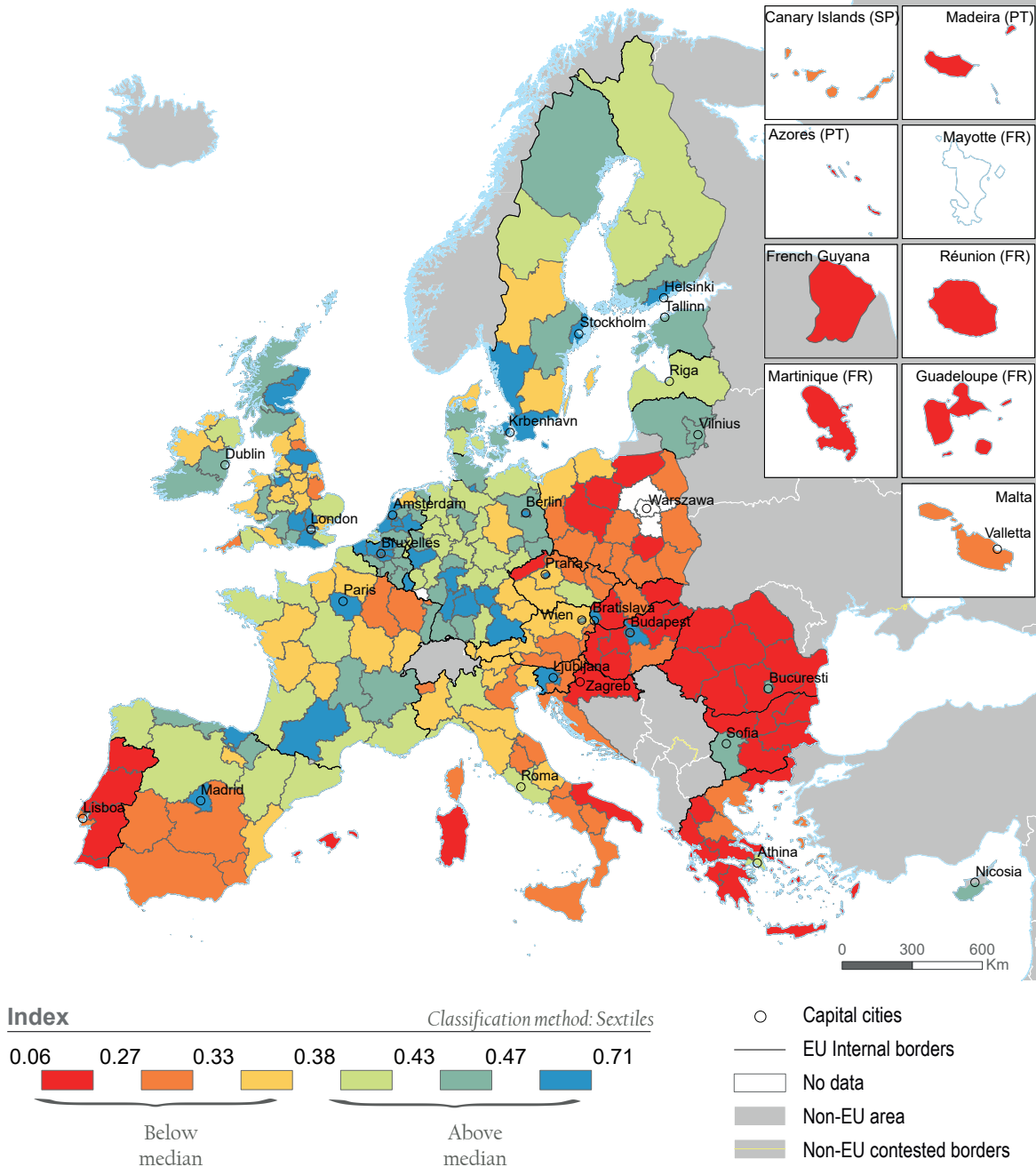
## Economic concentration (2008)



### Economic concentration diminishes resilience capacity

Economic concentration was measured using Herfindahl-Hirschman Index (HHI). Higher values of HHI indicate a higher level of concentration. HHI values have been overlapped with performance index values. Higher values of HHI are correlated with lower level of performance index. The regions with more concentrated economy – East and South of EU – have a lower resilience capacity. Extreme variations between the regions inside the same country can be observed in the countries located in South-East, South and North-West of EU.

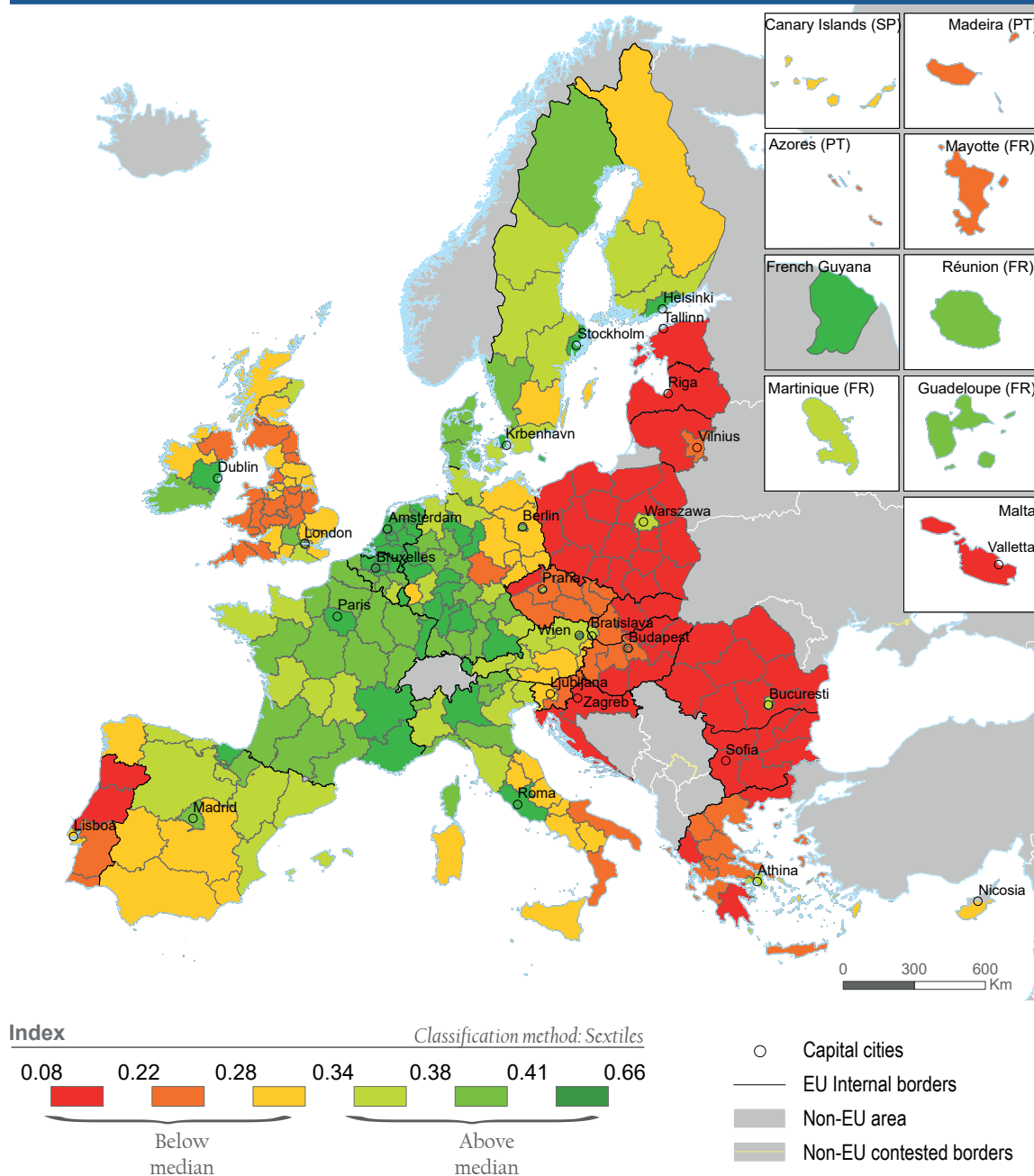
## Human capital (2008)



### The mosaic of talent in European Regions

Regional performance on human capital shows a significant degree of variation of both within and between countries with very high ratios between best and worst performing region for several countries. Best performing regions are located in Western, Central and Northern European countries (e.g., Netherlands, Germany, Belgium or Denmark). Lowest performing regions are located in Eastern Europe, and in the extreme South. Extreme within country variation is found in Hungary, Bulgaria, and Romania, whereas most countries exhibit a wide but gradual variation within regions (e.g., Spain, Italy).

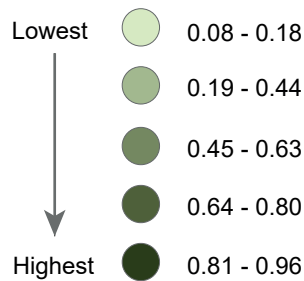
## Regional productivity (2008)



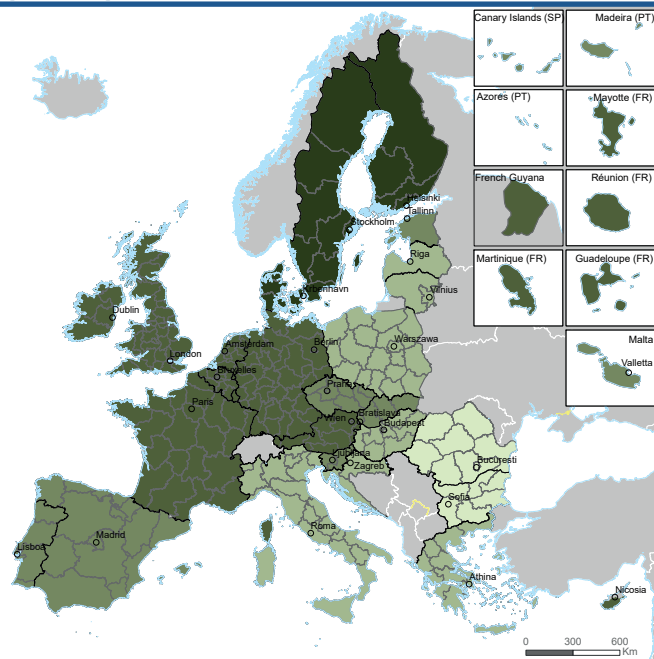
### Productivity as a key factor of resilience capacity

Productivity, as one of the main determinants of living standards, can impact the level of resilience of a region in terms of its association with economic efficiency, innovation, specialization, the existence of mechanisms to ensure an appropriate response to challenges of any kind, including when shocks or crises occur. At the level of the European Union, a high degree of heterogeneity can be observed in terms of regional average productivity, with a strong correlation between these levels and the degree of economic development of the regions.

## Government effectiveness (2008)

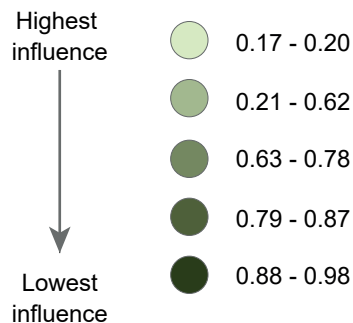


An effective government is an important factor when shaping the regional reactions to challenges and crisis, playing a fundamental role in both promoting and achieving resilience at all levels. Hereof, our analysis reveals that high-quality governments are associated with more resilient regions, underlying consistent discrepancies between regions in Northern and Western Europe versus the less developed East and South.

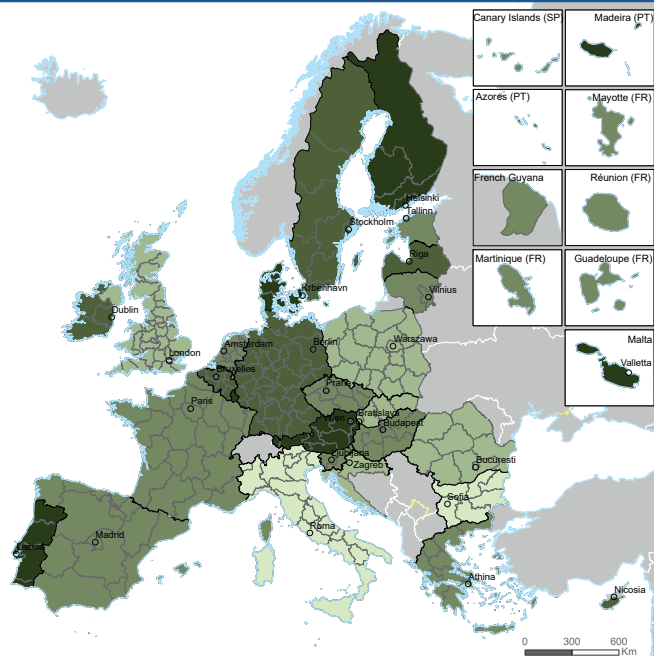


\* This map displays NUTS0 data disaggregated at NUTS2

## Organized crime (2008)



As criminal activities and organizations exert great pressure on the safe and sustainable economic development of countries and regions, the governments' capacity to control the organized crime becomes pinnacle in fostering their resilience. At European level, the analysis indicated a robust link between the more resilient regions and the capacity of governments to tackle organized crime, with the Eastern and Southern regions being the most vulnerable.



\* This map displays NUTS0 data disaggregated at NUTS2